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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/769,911	02/03/2004	Ruprecht Kroker	248425US0DIV	9770

22850 7590 03/05/2007  
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.  
1940 DUKE STREET  
ALEXANDRIA, VA 22314

EXAMINER
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PUTTLITZ, KARL J

ART UNIT	PAPER NUMBER
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1621

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	03/05/2007	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 03/05/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com  
oblonpat@oblon.com  
jgardner@oblon.com

**Office Action Summary**

Application No.

10/769,911

Applicant(s)

KROKER ET AL

Examiner

Karl J. Puttlitz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 11-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☒ Certified copies of the priority documents have been received in Application No. 11/334000.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

KARL PUTTLITZ  
PATENT EXAMINER

**Attachment(s)**

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

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### **DETAILED ACTION**

The objection to the specification has been withdrawn in view of the amendments adding the required cross-reference and brief description of the drawing.

Regarding the foreign references in the IDS, the PTO's electronic copy of the parent application of the instant application does not have the foreign references. Applicant is requested to assist the examiner and provide the missing copies.

The rejection of claims 6 and 7 under section 112, second paragraph is withdrawn since the claims have been amended to add sufficient antecedent basis.

The rejection under section 102 is maintained and repeated below. Applicant's remarks in connection with this ground of rejection are also addressed.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Claims 11-17 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. patent No. 5,931,579 to Gallus et al. (Gallus).

The rejected claims are drawn to a reactor which is divided into a plurality of sections which are separated from one another by dividing walls each having at least one orifice and which has a nozzle extending into the first section means for feeding in and removing the substances involved and means for controlling the temperature in the sections.

The rejected claims also cover those embodiments wherein the dividing walls each have an orifice which is present substantially in the center of the dividing wall.

The rejected claims also cover those embodiments wherein the nozzle used is a jet nozzle, mixing nozzle or binary nozzle.

The rejected claims also cover those embodiments wherein an annular tube having a plurality of outlet orifices and a line for feeding in a starting material is provided in the region of the bottom in the first section.

The rejected claims also cover those embodiments wherein the volume of the first section is greater than that of the remaining sections and accounts for from 25 to 50% of the total reactor volume.

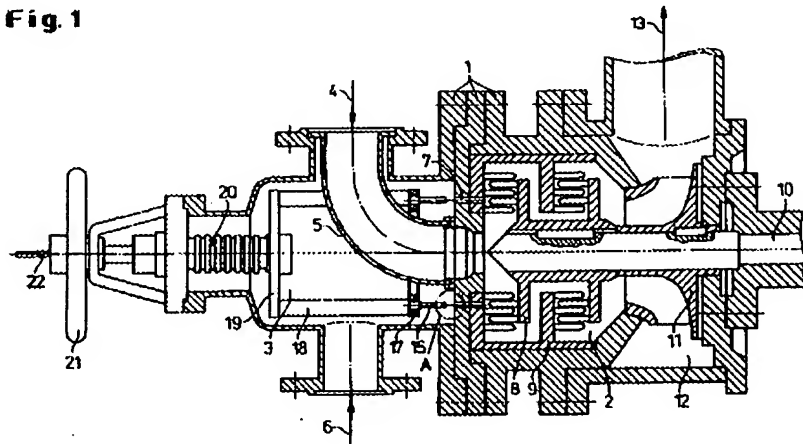
The rejected claims also cover those embodiments wherein the first and/or second section is equipped with static mixing elements.

The rejected claims also cover those embodiments wherein a nozzle for mixing the content of the second section is provided and is arranged in such a

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way that its outlet orifice is present in the orifice roughly in the plane of the dividing wall.

With regard to the above embodiments, Gallus teaches a mixer reactor in connection with the following figures:

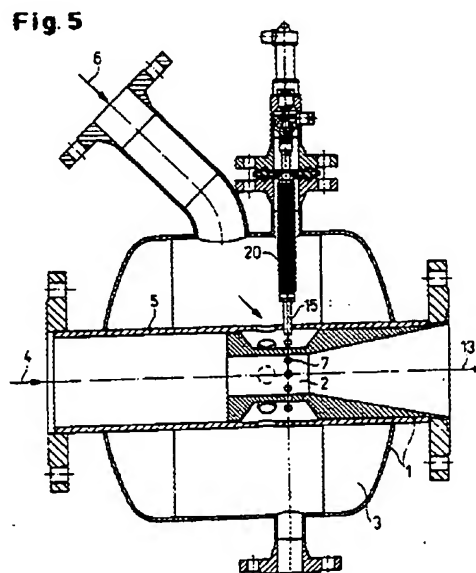
**Fig. 1**

wherein two flows or substances are present, the mixer-reactor, which is represented as an axial section in FIG. 1, consists of a casing 1, which contains a mixing chamber 2 and a distribution chamber 3. The first material flow 4 is introduced axially into the mixing chamber 2 through a bent duct 5 which passes laterally into the wall of the distribution chamber. The second material flow 6 is introduced into the distribution chamber 3 and enters the mixing chamber 2 through a plurality of parallel nozzle bores 7 concentric to the axis of the mixer-reactor. The mixing chamber 2 contains rotor elements 8 driven on an axis 10 and stator elements 9 connected to the casing. A rotor disc 11 is also provided, which conveys the mixture through the annular channel 12 into the outlet duct 13. According to the present invention, bolts 15 are provided, which are allocated to

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each nozzle 7 and attached to a supporting ring 17. The supporting ring 17 is connected via a spacer block 18 to a plate 19, which is axially displaceable on an axis 22 by means of a handwheel 21. The passage of the axis 22 through the wall of the distribution chamber 3 is encapsulated so as to be gas-tight, for example, by welded expansion bellows 20. See column 3, lines 25-47.

Gallus also describes the invention in Figure 5:



The above figure shows the axial section through the mixer-reactor according to the invention, with the mixing chamber 2 being constructed in the form of a Venturi tube. The distribution chamber 3 is arranged concentrically around the mixing chamber 2. The nozzles 7 run radially into the mixing chamber 2. Corresponding with this, the bolts 15 are individually radially displaceable into and out of each nozzle 7 along a path sealed by bellows 20.

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With regard to the required means for controlling the temperature, the walls of the respective chambers can control temperature.

The foregoing anticipates the rejected claims within the meaning of section 102.

Applicant argues that Gallus fails to teach a plurality of reaction sections, and specifically, that a distribution chamber 3 of Gallus is not a reactor section, but rather a means by which a reactant (second material flow 6) is fed to the mixing chamber 2. However, given the broadest reasonable interpretation of the term reaction section (i.e., a section of the reactor). The distribution chamber of Gallus meets this criterion.

The following are new grounds of rejection:

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

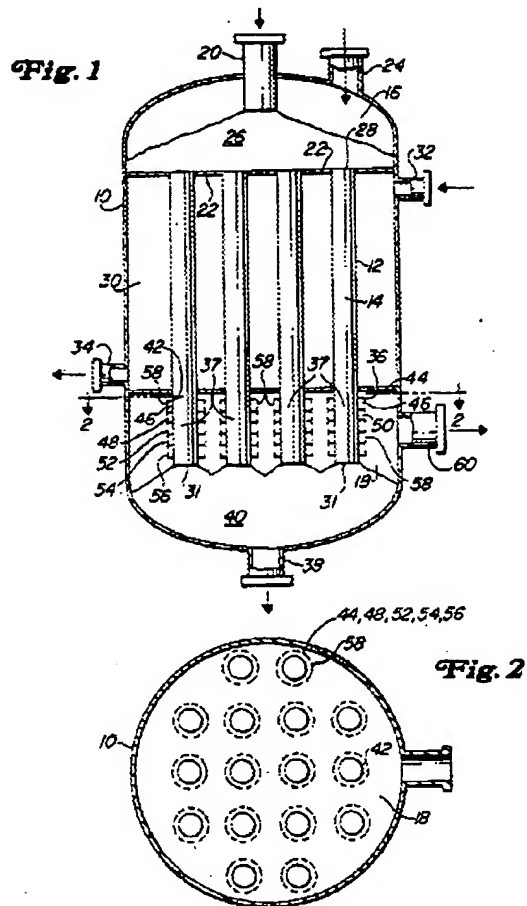
A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 11-13 and 16-18 are rejected under 35 U.S.C. 102(b) as being anticipated by US 5,762,888 to Sechrist (Sechrist).

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Sechrist teaches a reactor with reference to the following figure:



wherein reactor vessel 10 houses a plurality of tubes 12 that serve as partitions to define flow channels 14. Flow channels 14 have a circular cross-section. Above the tubes 12, reactor 10 encloses a chamber 16 for the distribution of solid particles in the form of catalyst to the tubes and the addition of gaseous reactants for passage through the catalyst in flow channels 14. The catalyst passes through a nozzle 20 and rests in chamber 16 on a transversely extended partition 22. Reactants pass into chamber 16 through a nozzle 24 and pass through the bed of catalyst 26. Catalyst bed 26 retains an inventory of catalyst particles that maintains a constant supply of catalyst to the tubes 14. As



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catalyst is withdrawn from the bottom of the reactor 10 through a catalyst withdrawal nozzle 38 catalyst particles pass from bed 26 into channels 14 primarily under gravity flow with some assistance of gases at the inlet of the tubes.

Chamber 16 distributes both catalyst and reactants into the flow channels 14 of the reactor vessel. Tubes 14 each define an inlet 28 at partition plate 22. The inlets receive both catalyst and a gaseous reactant from chamber 16. Inlets 28 feed the catalyst particles and reactants into the vertically extended flow channels 14.

The middle of the reactor defines a heat exchange chamber 30. Heat exchange chamber 30 surrounds the exterior of tubes 12. The surrounded portion of tubes 12 provide a heat transfer surface for the heating or cooling of the catalyst and reactants in flow channels 14. Heat exchange medium enters the chamber 30 through a nozzle 32 and exits the chamber 30 through a nozzle 34. Another transversely extended partition 36 defines the bottom of the heat exchange chamber 30 and separates the heat exchange portion of tubes 12 from the lower portion of tubes 12.

The bottom of the reactor vessel forms a collection chamber 18. Tubes 12 extend below partition 36 into collection chamber 18. Collection chamber 18 contains a plurality of tubes. Each tube 12 defines an outlet 31 at its lower most portion. The outlets 31 all discharge catalyst particles at a common elevation. Discharged catalyst collects in a bed 40. The direct discharge of outlets 31 into the open collection chamber 18 provide a compact design that minimizes the

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necessary height of the chamber from outlets 31 to catalyst nozzle 38. As catalyst exits tubes 12 through outlets 31, it maintains bed 40 as a dense bed up to the top of outlet 31. The dense bed of catalyst up to outlets 31 maintains flow channels 14 full of catalyst over their entire length.

The lower portion of each of tubes 12 provides a disengagement chamber 37. The outlet for the upper portion of each of tubes 12 is at the level of partition 36. The upper portion of each tube 12 discharges particles and gas into the disengagement chambers 37.

The foregoing anticipates the rejected claims within the meaning of section 102.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

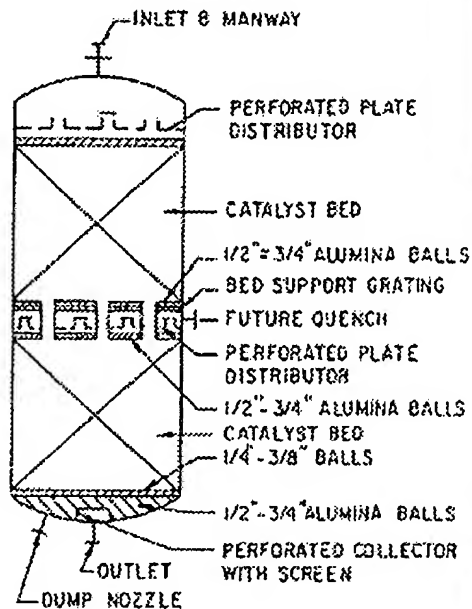
Claims 11-13 are rejected under 35 U.S.C. 102(b) as being anticipated by

Perry's Chemical Engineers' Handbook (7th Edition) Edited by: Perry, R.H.;

Green, D.W. © 1997 McGraw-Hill, pp. 23:1-53.

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Perry teaches on page 23-54 (left column, reactor have a plurality of sections that anticipates the rejected claims:



### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karl J. Puttlitz whose telephone number is (571) 272-0645. The examiner can normally be reached on Monday to Friday from 9 a.m. to 5 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thurman K. Page, can be reached at telephone number (571) 272-0602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to be 'K. Puttlitz', written in a cursive style.

KARL PUTTLITZ  
PATENT EXAMINER